

CFE-06-08: Asia-Pacific Gas Market Growth

APP Cleaner Fossil Energy
Task Force Meeting
Seoul, 1 April 2009



Australian Petroleum Australian
Production & Exploration Association (APPEA)



Project overview




Draft

Harmonisation of the APP gas markets


Analysis of gas markets and their growth in APP Partner economies

Executive summary and Findings and conclusions

November 2008




A world map with the Asia-Pacific region highlighted in blue. The rest of the world is in a light tan color.



A photograph of four business professionals (three men and one woman) in a meeting, looking at documents.

Australia • Canada • China • India • Japan • Korea • US



PRICEWATERHOUSECOOPERS

Project Objectives and Description:

To improve energy security while reducing environmental impacts of fossil fuel use by increasing the utilisation of gas within the Asia-Pacific Region.

Analyse the Asia-Pacific region gas market conditions, identify impediments to and provide solutions for improving market conditions.

Purpose today:

launch of Executive Summary of draft report to the Task Force and country reports to individual Partners.


Asia-Pacific Gas Market Growth Project

APP Cleaner Fossil Energy Task Force Meeting in South Korea

March 2009



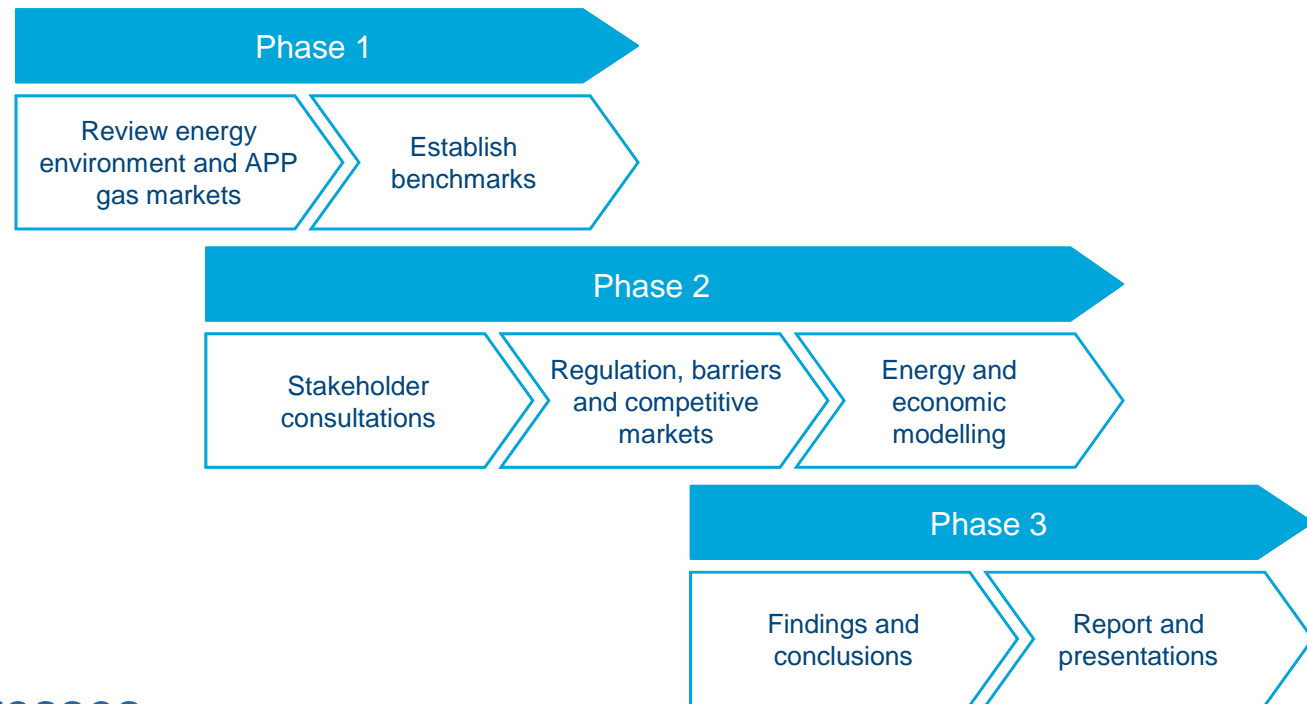
Australia • Canada • China • India • Japan • Korea • US

PRICEWATERHOUSECOOPERS 

Project objectives

- The goal of the Asia-Pacific Gas Market Growth Project (CFE-06-08) is to identify opportunities to increase the utilisation of gas within the Asia-Pacific Region.
- Specifically, the project will seek to facilitate greater gas utilisation in order to:
 - enhance energy security
 - reduce air pollution
 - reduce greenhouse gas emissions, and
 - enhance economic growth.
- PwC was engaged to study the APP gas markets and prepare a report.

PwC has structured the project and analysis in three phases:



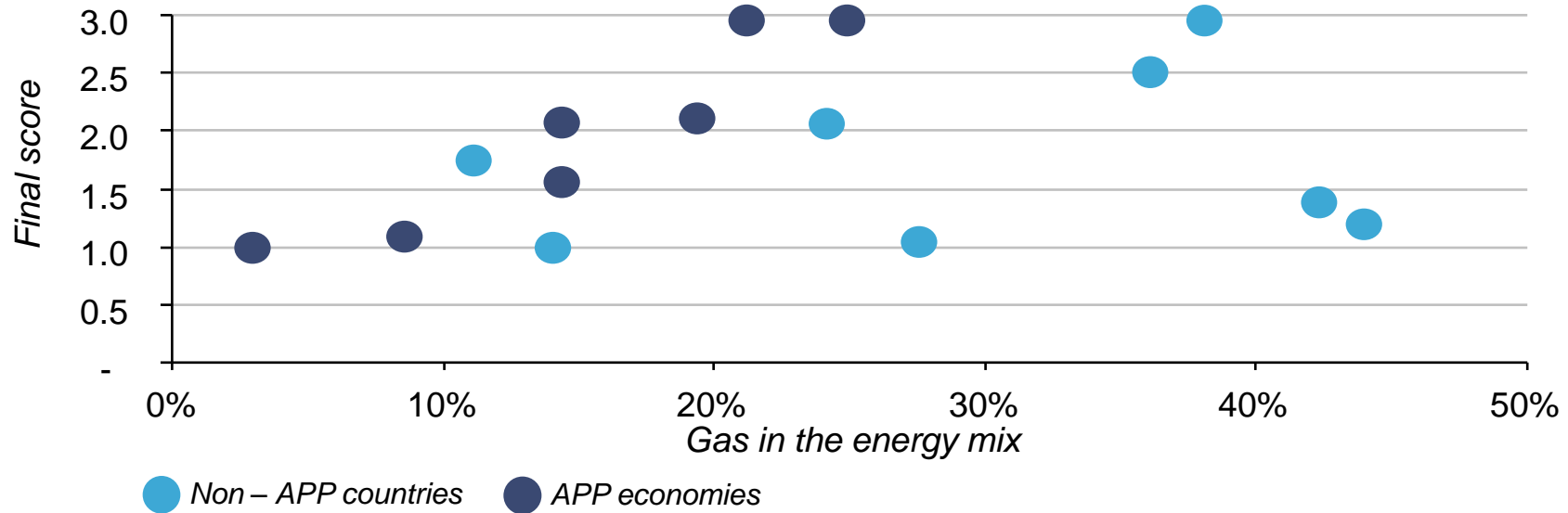
This approach addresses

- analysis of gas markets in each APP Partner economy
- review of policy and regulatory practices
- data and information needs, and
- modelling of energy markets, including energy usage, investments, emissions and economic parameters.

Key findings in the report

- There are substantial opportunities to grow gas use in the APP economies
- Growth of gas use will have a positive impact on the parameters that were modelled (i.e. energy security, CO2 emissions, air pollution and economic growth).
- Importing countries can assist the supply side by improving domestic gas markets:
 - there are no real barriers to international trade in gas
 - reduction of the broad set of risks facing major development projects (including market and sovereign risk) will encourage investment and trade
 - domestic gas market growth should be underpinned by government policies and regulation that support market development and provide certainty.
- There are significant country-specific and regional differences within the APP.

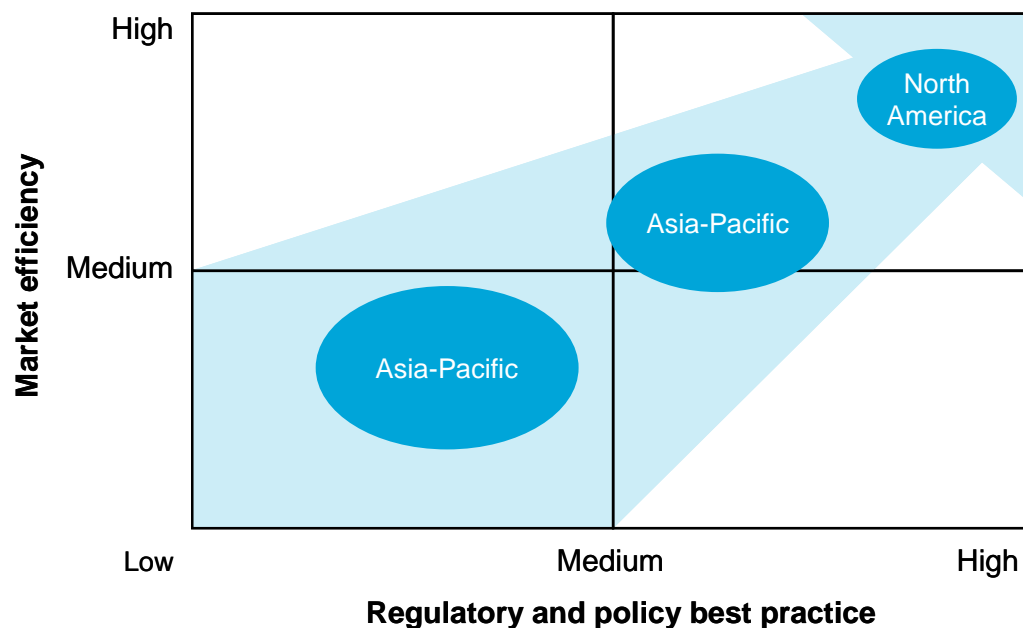
Benchmarking market efficiency in Asia-Pacific and Atlantic Basin



A benchmarking assessment compared efficiency of domestic gas markets in the APP to a benchmark established by PwC in consultation with stakeholders.

- Categories: Market competitiveness, gas infrastructure, government policies, wholesale markets, regulation.
- Countries assessed: APP7 plus 8 European and Asia-Pacific markets

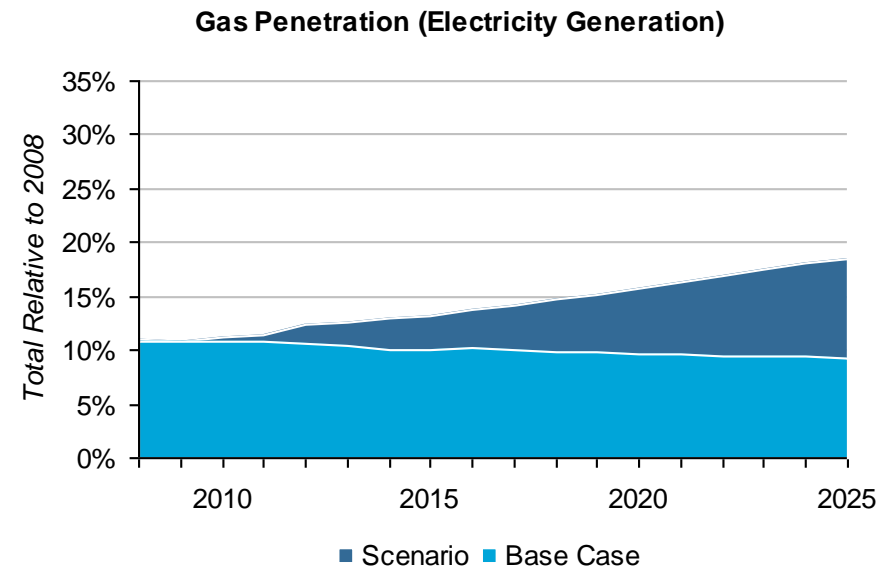
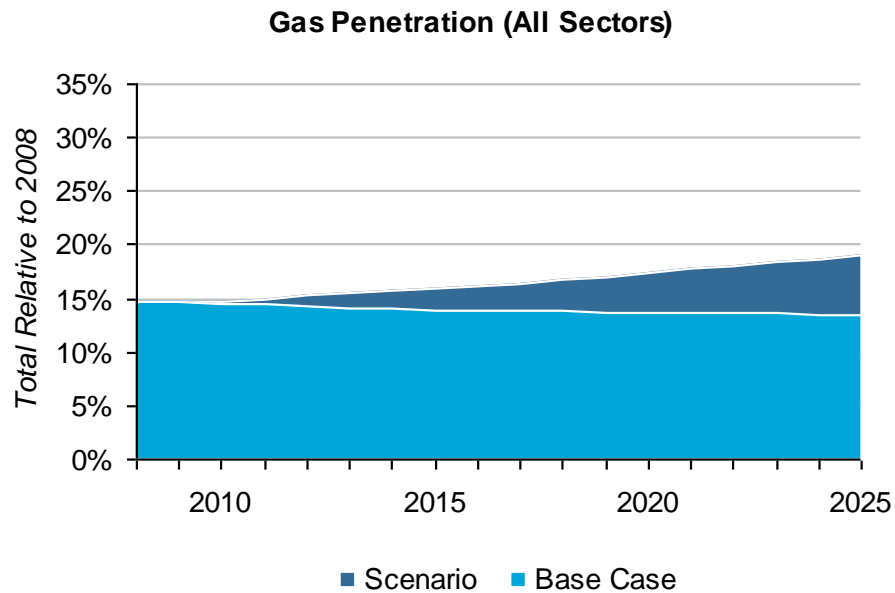
Market efficiency and best practice principles in APP gas markets



The analysis found strong correlation between gas market efficiency in APP economies and the APEC Energy Working Group's best practice principles:

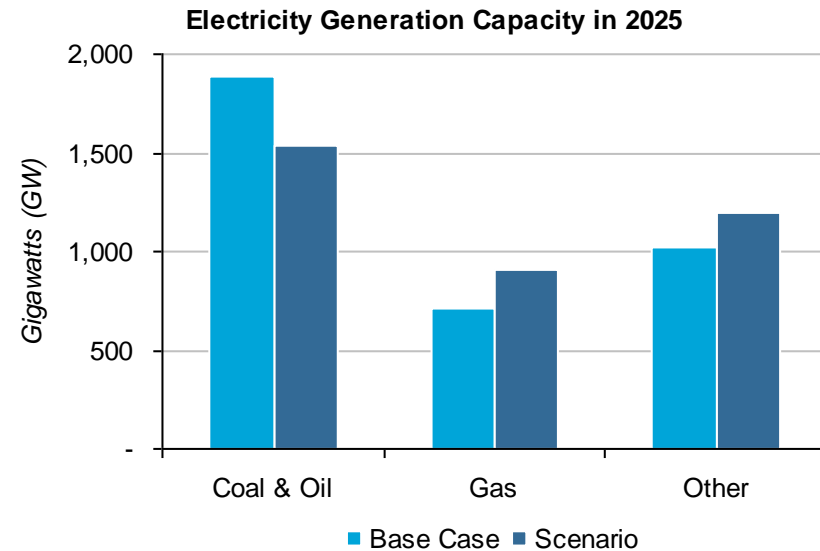
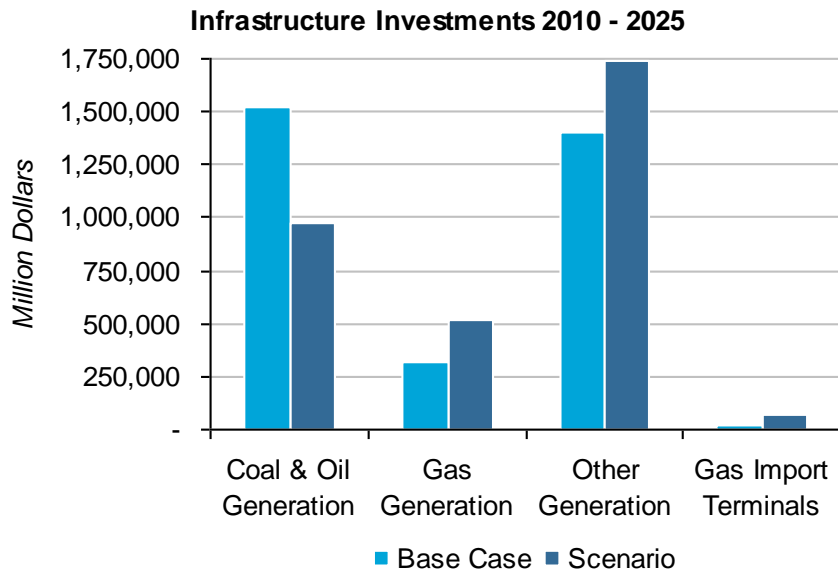
- North American markets fare well against both criteria
- some Asia-Pacific gas markets score medium, with potential to improve over time
- many Asia-Pacific countries are in the early stages of developing domestic gas markets.

Modelling of APP gas markets



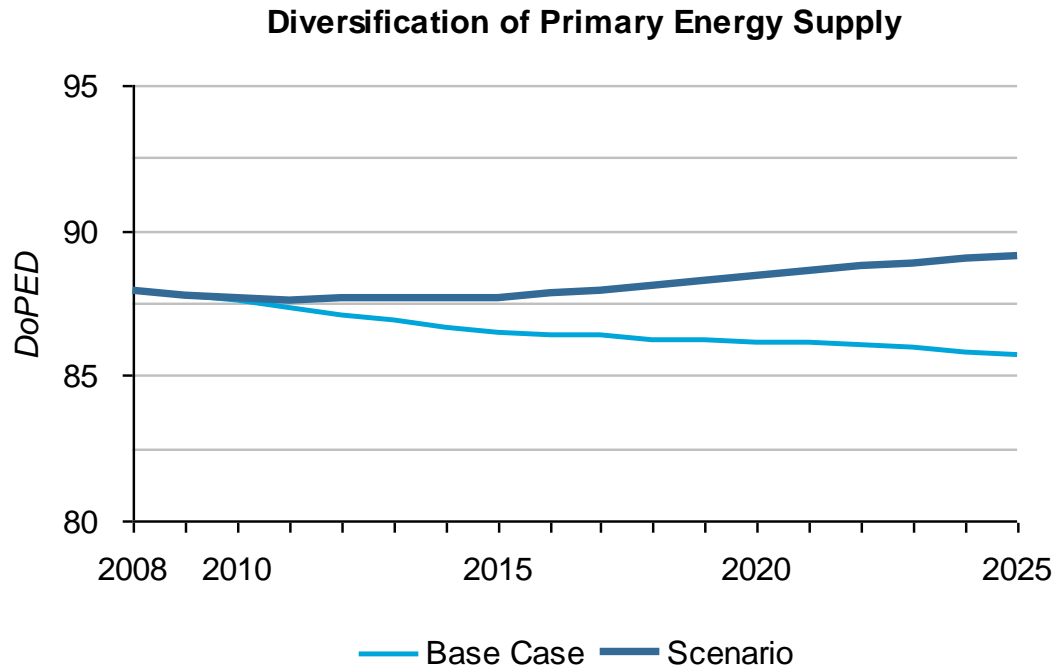
- A Base Case of business as usual shows that gas use in the APP will drop from 15% at present to 13% in 2025.
- By introducing a carbon signal and removal of some barriers – the Scenario achieves gas penetration of 19%. This is a realistic scenario, and does not represent an upper limit on gas usage.
- Opportunities to grow gas use are greatest in electricity generation.

Impact on investments in electricity generation



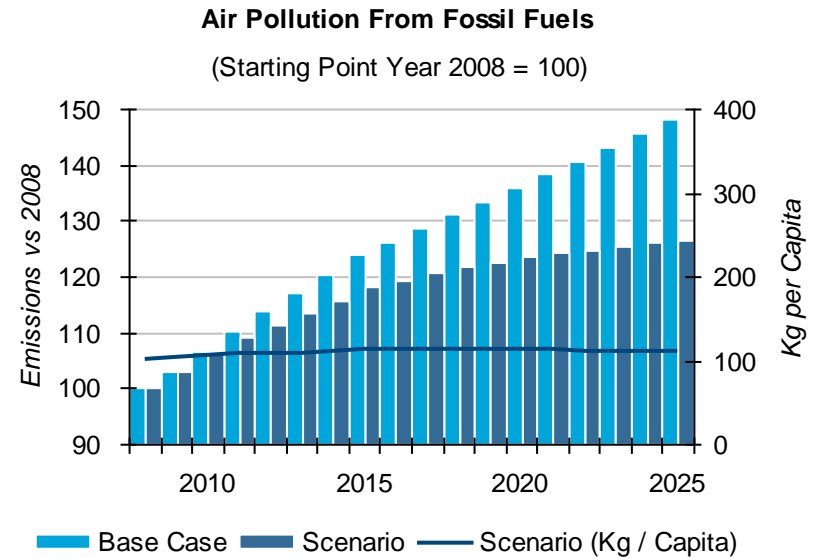
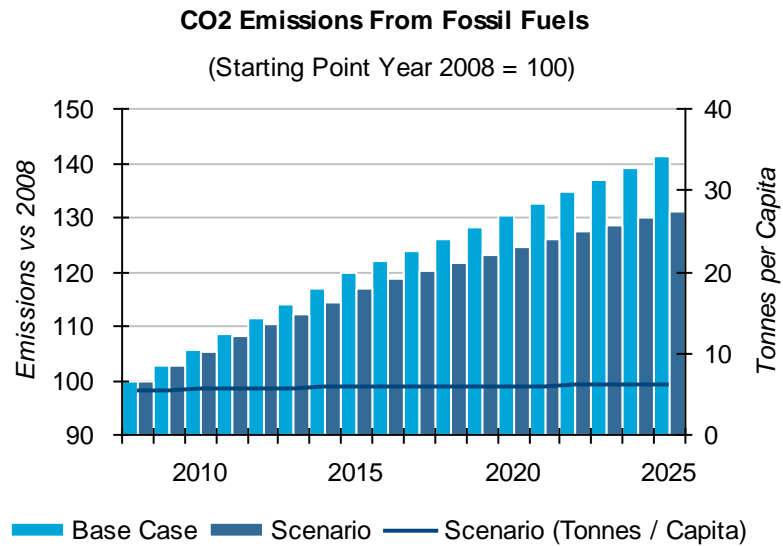
- Electricity generation capacity will increase by 50% by year 2025 with total investments of more than US\$3,200 billion.
- In the Base Case – nearly 50% of investments are in coal fired plants.
- The Scenario shows significant shift in investments towards gas and renewable generation capacity.

Impact on energy security



- Increased use of gas will improve energy security when measured as “Diversification of Primary Energy Supply”
- The reliance of coal in 2025 is reduced from 42% in the Base Case to 35%

Impact on greenhouse gas emissions and air pollution



- Both the Base Case and the Scenario show increasing levels of CO2 emissions and air pollution from burning fossil fuels in the APP economies.
- Increased use of gas will have a favourable impact on both CO2 emissions and air pollution.

Impact on economic growth

- Impact on gross domestic product in 2025:
 - Economic modelling shows modest negative impact on GDP from increased use of gas, mainly due to the higher cost of energy.
 - Some APP economies will experience a positive impact on GDP and/or aggregate consumption.
- Impact on gross domestic product beyond 2025:
 - The full benefit of increased gas use on the economy will only become evident after the end of the modelling period in 2025.
 - It can be argued that the long term economic impact (beyond 2025) of increased gas use is positive, provided that the higher cost of energy is consistent with a market based value of carbon that fully reflects the impact of global warming.

Key issues and impediments to gas market growth

- Energy policy
 - Policy on CO2 emissions and preferred energy mix are global issues, but determined individually by Governments.
- Policy and regulatory approach
 - Policy and regulation set the basic rules for how domestic gas markets operate.
- Competition and pricing
 - These represent impediments in relation to market power, third party access and price distortions.
- Infrastructure
 - Infrastructure planning and building capacity to bring gas to market are key priorities in some countries.
- Co-ordinate regulatory processes.

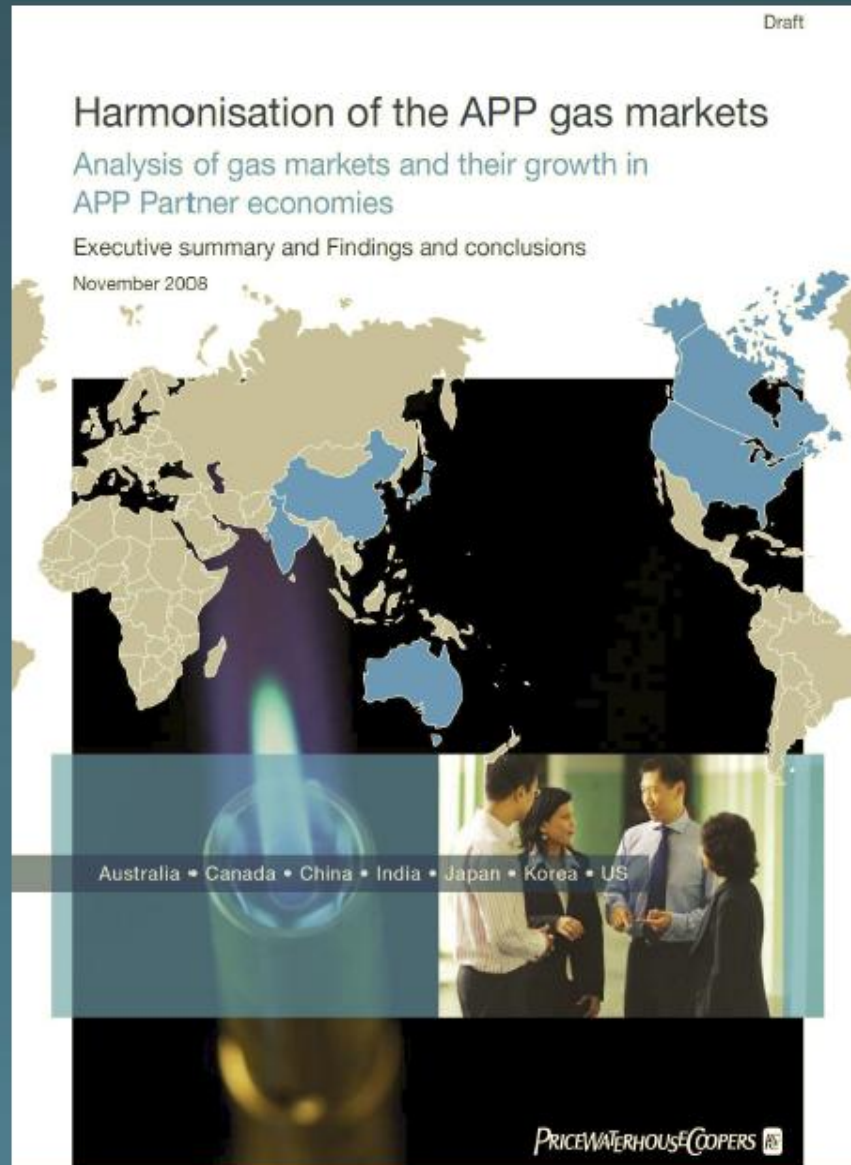
Details of the key issues and impediments to growth

Impediment to growth	Description	Category
Energy policy <ul style="list-style-type: none"> • Value of CO2 	APP Partners should clarify policies on global warming and initiatives to reduce carbon emissions.	Global
Energy policy <ul style="list-style-type: none"> • Preferred energy mix • Support for other fuels 	APP Partners should clarify their policies on how to achieve a target energy mix, including any preferences or privileges for certain fuels. Support for other fuels is likely to have a direct negative impact on gas use.	Global
Policy and regulatory approach <ul style="list-style-type: none"> • Independent regulator • Transparency 	Market participants will benefit from having an independent regulator to oversee markets and implement reform.	Country specific
Competition and pricing <ul style="list-style-type: none"> • Market power • Third party access 	The Asia-Pacific markets display varying degrees of market power, some of which can be addressed by introducing more competition in selected areas.	Asia-Pacific
Competition and pricing <ul style="list-style-type: none"> • Pricing distortions - wholesale • Pipeline tariffs 	Subsidies and sub-optimal pricing will discourage investments in exploration and infrastructure, and lead to inefficient utilisation of resources.	Country specific
Infrastructure <ul style="list-style-type: none"> • Capacity to bring gas to market • Infrastructure planning • Seasonal demand 	Impediments related to existing and required infrastructure are most profound in the developing countries with low gas penetration at present. Infrastructure planning will assist investors and provide assurance of the future commitment to gas.	Country specific in Asia-Pacific
Regulatory process	There is a need to co-ordinate and improve process approvals, but this issue is less important than some of the issues above.	North America

Summary of conclusions

- There are substantial opportunities to grow gas utilisation in the APP economies, particularly in electricity generation.
- Gas market growth must be underpinned by government policies and regulation that support market development and provide certainty.
- Producers and end users must work together to develop markets.
- There are significant differences in market efficiency across the APP economies.
- Higher gas penetration will have a positive impact on energy security, CO2 emissions, air pollution and economic growth.

Project overview



Comments on draft Executive Summary welcomed from all Task Force members:

please provide comments by **30 April 2009**.

Individual country reports to be made available individual Partners today. Comments from those Partners welcomed:

please provide comments by **30 April 2009**.

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